(No Model.)

T. W. HARVEY.

PORTABLE PHOTOGRAPHIC DEVELOPING BOX.

No. 385,264. Patented June 26, 1888.

Fig. 3.

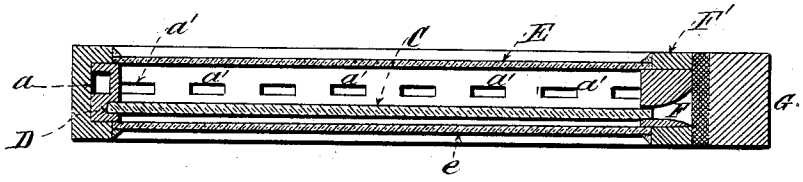


Fig. 2.

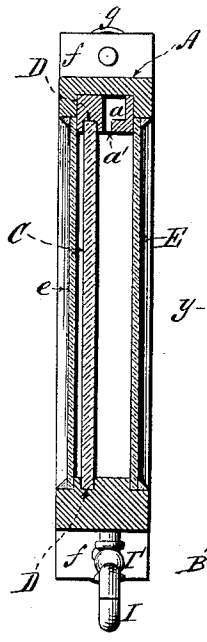
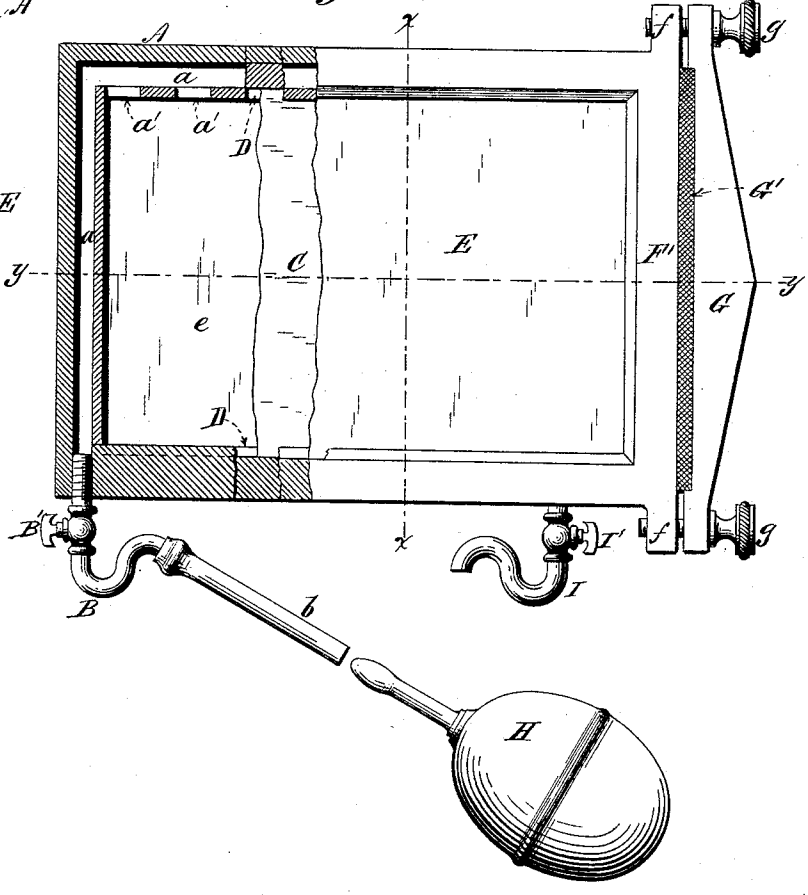


Fig. 1.



Witnesses:

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UNITED STATES PATENT OFFICE.

THOMAS WILLIAM HARVEY, OF ORANGE, NEW JERSEY.

PORTABLE PHOTOGRAPHIC DEVELOPING-BOX.

SPECIFICATION forming part of Letters Patent No. 385,264, dated June 26, 1888.

Application filed February 27, 1888. Serial No. 265,413. (No model.)

To all whom it may concern:

Be it known that I, THOMAS WILLIAM HARVEY, a citizen of the United States, residing at Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Portable Photographic Developing-Boxes, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a portable water-tight photographic developing-box, made partly of a tinted glass impervious to actinic light, and provided with a tight-fitting removable cover, and with pipe-connections for introducing into and withdrawing from the box liquids used in developing a sensitized plate which has previously been exposed in a camera, and after removal therefrom placed in the developing-box.

The great advantage of the invention is that it permits the operator to conduct the developing process in white light or even in sunlight, under the most favorable conditions for observation. Incidentally it dispenses with the developing closets or chambers of considerable dimensions commonly employed, and hence materially diminishes the cost of the appliances required for conducting the developing process.

The accompanying drawings of a photographic developing-box containing the invention are as follows:

Figure 1 is a top view, partly in section. Fig. 2 is a transverse section taken through the plane indicated by the line *x x* on Fig. 1. Fig. 3 is a longitudinal section taken through the plane indicated by the line *y y* on Fig. 1.

The drawings represent a shallow box slightly exceeding in its length and width the length and width of the plates for which it is intended to be used. It consists of a substantial rectangular frame, A, in a portion of which there is formed a receiving-chamber, *a*, connected with the liquid-supply pipe B. The inner wall of the receiving-chamber *a* is provided with a series of perforations, *a'*. The liquids used in the developing process are supplied through the receiving-chamber *a*, through the pipe B, and discharged therefrom through the perforations *a'* simultaneously upon different portions of the photographic plate C, which is held in position by having its sides entered, respectively, into the grooves D D, formed in the opposite sides of the frame.

The top E and bottom *e* of the box are each formed of a pane of suitably-tinted glass, and each pane is secured in a seat formed around the rectangular frame and makes a water-tight joint therewith. The panes of glass at the top and bottom of the box are intended to be transparent, but must be so tinted as to exclude actinic light-rays from the interior of the box. For this purpose ruby or yellow-colored glass may be employed, or, what is better still, a pane of glass ruby-tinted on one side and yellow-tinted on the other.

One end of the rectangular frame is provided with a slot, F, the extremities of which coincide in alignment with the grooves D D, formed, respectively, in the inner sides of the side members of the rectangular frame. The slotted end F' of the frame is elongated, in order to provide the two laterally-projecting lugs *f f*, through which holes are respectively tapped, to receive the clamping-screws *g g*, by means of which the cover G is clamped to the frame. The bearing-face of the cover is provided with the packing-strip G', of rubber or other elastic material, so that the cover G, when clamped in place, will make a water-tight joint with the frame and securely close the slot F after the photographic plate C has been introduced into the box.

The supply-pipe B is preferably provided with a stop-cock, B', and for abundant caution, in order to prevent the entrance of white light through the pipe into the box, is sinuously curved, as shown. A flexible coupling-pipe, *b*, is connected at one end to the outer extremity of the supply-pipe B, and is intended to have its other end applied to the nozzle of an ordinary bulb-syringe, H. An air passage or pipe, I, also sinuously curved and provided with a stop-cock, I', is inserted through one of the side members of the rectangular frame, so that when the cock I' is opened the pipe I will serve as an outlet for the air expelled from the interior of the box when liquids are injected into it, and will serve to let air into the box when

liquid is withdrawn therefrom through the pipe B.

It will of course be understood that the developing-box may be varied in its shape and in the manner of its mechanical construction without departing from the invention, the essential requirements of which are that the box shall have an opening allowing such access to its interior as will permit the introduction therein of the plate which is to be developed; a movable cover, by means of which said opening can be closed water-tight; a transparent portion, which permits a photographic plate within the box to be visually observed during the progress of the developing operation, but which will not admit into the interior of the box light which is actinic; and, finally, means for introducing into and withdrawing from the interior of the closed box the liquids used in the developing process.

In practice the removal of a plate from the camera in which it has been exposed to the developing-box will be effected with the aid of a changing-box or a changing-bag, both of which appliances, being well known, do not herein need description.

After the plate has been introduced into the developing-box and the cover thereof fastened in place, the operation of developing and fixing the picture is performed by the use of the usual liquids without any further precaution against the exposure of the photographic plate to white light.

When the top and bottom panes of glass are each ruby-tinted on one side and yellow-tinted on the other, the developing-box may be exposed even to sunlight without injury to the sensitized plate inclosed therein, excepting when such plate is very highly sensitized, in which case it will be better not to expose the developing-box to the direct rays of the sun nor to very brilliant white light.

By filling the bulb of the syringe with liquid and connecting its nozzle with the flexible tube B and compressing the bulb such liquid is readily injected into the interior of the box and discharged in jets over the surface of the sensitized plate therein, the air cock I′ being open during this operation. By then closing the air-cock I′ and removing the pressure from the bulb of the syringe the liquid in the box is readily withdrawn therefrom.

The developing-box, during the injection of the liquids employed, is held in a horizontal or slightly-inclined position.

The tinted glass may be used for the top only of the box, in which case the developing of the picture can be observed by light reflected from the surface of the photographic plate. It is, however, manifestly preferable to make both the top and the bottom of the box transparent, so that the box can be held up toward the light and the progress of the developing operation rendered plainly visible by light which shines through the photographic plate.

What is claimed as the invention is—

1. A portable photographic developing-box made partly of tinted glass impervious to actinic light, and provided with a tight-fitting removable cover and with pipe-connections for introducing into and withdrawing from the box the liquids used in developing a picture upon a sensitized plate which has previously been exposed in a camera and after removal therefrom placed in the developing-box.

2. A photographic developing-box partly made of transparent tinted glass and adapted to contain a photographic plate, and provided with an internal receiving chamber having perforations in its inner wall, for the purpose of effecting the simultaneous discharge upon different portions of the plate under treatment of liquid introduced into the said receiving-chamber by means of a suitable pipe connected therewith.

3. A photographic developing-box made partly of tinted glass, in combination with a pipe for introducing into and withdrawing from the interior of said box the liquid employed in the developing process, and an air passage or pipe for letting air escape from the box when liquid is injected into it, and for permitting air to enter the box when the liquid previously therein contained is withdrawn from it.

4. A photographic developing-box made partly of tinted glass and provided with an opening for permitting the introduction into the box of a photographic plate, in combination with a removable cover faced with an elastic material, and a fastening for said cover for securing it to the box and closing the said opening water-tight after said photographic plate has been introduced into the box.

5. The herein-described photographic developing-box, made partly of tinted glass, substantially as and for the purpose set forth, in combination with the liquid-supply pipe B, provided with the stop-cock B′, and the air-pipe I, provided with the stop-cock I′.

In testimony whereof I have hereunto set my hand, this 23d day of February, 1888, in the presence of two subscribing witnesses.

THOMAS WILLIAM HARVEY.

Witnesses:

PAUL F. C. TUCKER,

WILLIS FOWLER.